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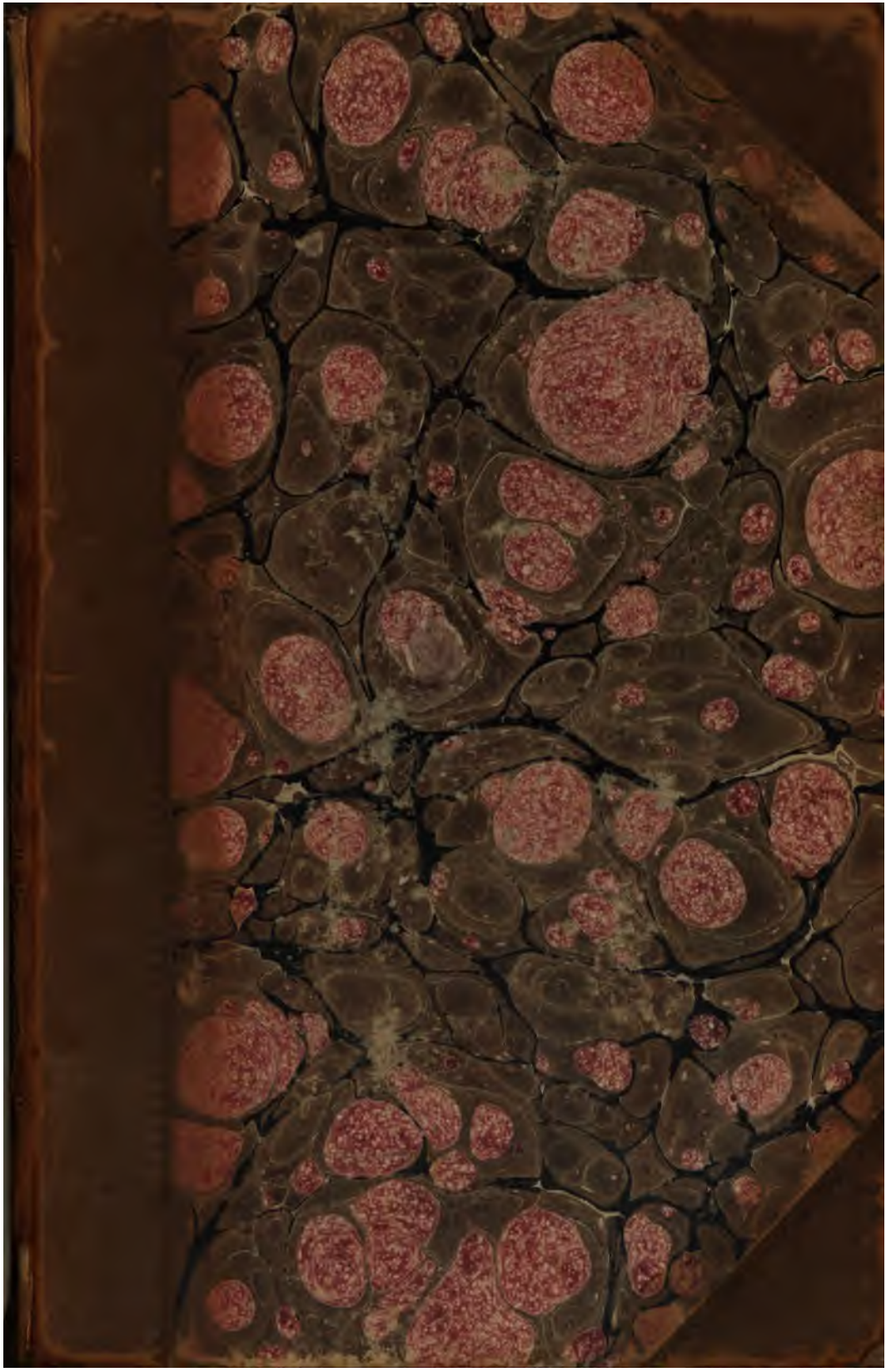

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CASES

ILLUSTRATIVE OF

THE EFFICACY OF VARIOUS MEDICINES

ADMINISTERED BY

INHALATION,

IN

PULMONARY CONSUMPTION;

IN CERTAIN MORBID STATES OF

THE TRACHEA AND BRONCHIAL TUBES,

ATTENDED WITH DISTRESSING COUGH;

AND IN

ASTHMA.

BY

SIR CHARLES SCUDAMORE, M.D. F.R.S.

HONORARY MEMBER OF TRINITY COLLEGE, DUBLIN;
OF THE MEDICO-CHIRURGIGAL SOCIETY OF EDINBURGH;
AND OF THE MEDICAL SOCIETY OF PARIS:
PHYSICIAN IN ORDINARY TO HIS ROYAL HIGHNESS THE PRINCE LEOPOLD
OF SAXE COBURG; PHYSICIAN EXTR. TO HIS EXCELLENCY
THE LORD LIEUTENANT OF IRELAND.

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1830.

740.

PREFACE.

It may with truth be affirmed, that, amidst the long catalogue of diseases which afflict human nature, there is not one which, from the earliest records of medicine, has so much baffled the art of the physician as Pulmonary Consumption. I trust, therefore, that any attempt to diminish its fatal power, by means of treatment which can be employed with perfect convenience, and without any risk of injury, will be received by the profession with that attention and candour which the magnitude of the subject, and the interests of science, equally deserve.

It cannot be denied that those affections of the pulmonary organs which are comprehended under the term of Chronic Bronchitis, call for the most serious attention; and that such disease, when occurring in its aggravated forms, possesses almost the importance of phthisis pulmonalis itself.

Very great benefit is afforded to the asthmatic patient by means of inhalation; both as to the relief of spasm, and of the morbid state of the mucous membrane of the air passages.

In the report which I have given of this plan of treatment, I have taken every care in my power not to exaggerate the statement of the results in any instance. On the contrary,

I might often, without any violation of truth, have described my success in much more glowing colours.

It is not an unusual question among critics, when a particular mode of practice is proposed by an author, What originality does it possess? I shall avoid entering upon this debatable ground, except to observe, that if I have had any merit in instituting the plan of treatment described in these pages, I have not been a copyist. When I commenced my investigation of the powers of Iodine, used in the way of inhalation, I had never heard a suggestion on the subject; and, in regard to most of the other medicines, except Chlorine, I am not aware that they have, up to the present moment, been employed in this manner by any other individual. Not, however, that I think, in any case of discovery, one person is less original than another because he has not been the first to proclaim it, if he can prove that his ideas were not borrowed. It should be matter of congratulation, rather than of regret or envy, in a science so important to humanity as that of medicine, that many should at the same time find a similar light to conduct them out of the path of obscurity.

In the practice of physic, newly discovered remedies must surely present a stronger claim to our approbation when satisfactory results have been obtained by several individuals, who, unacquainted with each other's labours, have pursued their object with a sincere desire for the attainment of truth.

6, *Wimpole Street, November* 12*th*, 1830.

PRELIMINARY OBSERVATIONS.

THE frequency of pulmonary consumption in our variable climate, the almost immedicable nature of the disease, and its ordinary fatality*, are melancholy and familiar truths. No apology therefore can be required for the proposal of any plan of treatment possessing at the same time the advantages of safety and efficacy.

The application of medicated vapours to the lungs has been a practice so long known, that the principle of the treatment claims neither the charm of novelty, nor the praise of invention; but the opportunity still remains of making great improvement in the means to be used, and in

* This fatality is usually stated by authors as forming a fourth of the general mortality; but this I conceive to be an exaggeration; although undoubtedly it is a disease the most universally fatal of all others in Europe.

the mode of applying them. It constitutes a new method of treatment, to administer by inhalation those medicinal agents which the science of modern pharmaceutical chemistry has brought to light; and it is my object, in the following pages, to shew that they are capable of exerting a very important and beneficial influence in certain states of pulmonary and bronchial disease.

The rationality of applying some remedial agent in a direct manner to the seat of the disease will not be questioned. It has been sufficiently admitted in the employment of different kinds of fumigations, vapours, and gases. Thus, amongst ancient and modern authors, we read of the administration by inhalation of some of the gases, of the volatile parts of different herbs, separately and in mixture, of frankincense, turpentine, styrax, æther, vinegar, tar, and other substances which might be mentioned. The most simple vapour in use is that of hot water, as a relaxant; or, upon the fanciful idea of obtaining more emollient properties, a preference is sometimes given to the decoction of marshmallows.

Some of the gases, and the vapour of tar, have been frequently extolled, as curative, beyond all the other means which I have mentioned; but experience has not stamped their use with sufficient value to procure for them the confidence of the profession.

My own failure of success in the trial of all the means with which I was acquainted, led me, about two years ago, to have recourse to that new and extraordinary medicine termed *Iodine;* and I employed a preparation of it miscible with hot water, so as to remain in permanent solution, using for the purpose of inhalation a glass apparatus, well fitted in its construction for the exhibition of the remedy in the form of vapour.

The first cases in which I employed this remedy were too desperate in their condition to admit of any probability of cure; but I had full reason to be satisfied with the palliative powers of the treatment; and, as another point that very naturally gained my anxious consideration, with its most entire and perfect safety to the patient:

I may add more, its freedom from all effects which could fairly be called even inconvenient.

A considerable interval elapsed before I had a suitable opportunity of pursuing the practice, in a manner sufficiently regular to allow a record of the results. At length, however, I was enabled to direct my close attention to the subject.

From an extensive experience in the treatment of pulmonary disease, I have had the satisfaction of proving the great advantage of using various medicines by the mode of inhalation, iodine more especially; and I now take the opportunity of submitting my facts and observations to the notice of my professional brethren, and the public.

I shall confine myself to the detail of cases sufficient for the elucidation of the subject; and add, in the way of commentary, such observations, theoretical and practical, as I may conceive to be appropriate to the cases themselves, while I allow myself occasionally the latitude of more general remark.

CASE I.

Phthisis Pulmonalis in the last stage; the disorganization of the lungs evidently too extensive to allow any probability of cure, and the treatment adopted with the hope of mitigating the symptoms.

The patient, a young man aged twenty-two, short and slight, with a narrow chest, pale, sallow, was much emaciated, and extremely debilitated. His father and brother both died from consumption early in life. He had long been an invalid, but first became seriously ill, with cough and difficulty of breathing, in November 1828.

I visited him in March 1829. I learnt that his illness had been occasioned by intemperance in drinking spirits, and careless exposure to night air; that of late he had experienced daily paroxysms of strongly marked hectic fever, and had rapidly wasted in flesh.

I found the pulse ranging from 120 to 130 in the minute, the inspirations 30, with severe sense of tightness and oppression over the chest; the cough so frequent as to render any conversation difficult; and he stated, that in the night it awoke him every hour. The expectoration was

copious, amounting to more than half a pint in the twenty-four hours, of the appearance of ill-conditioned pus: viewed before the candle between two pieces of plate glass, it exhibited a ring of coloured light. The appetite was not deficient, and the digestion was for the most part regular. The night sweats were profuse; but he was not sensible of heat of skin at any part of the twenty-four hours, although, for some time previously, and before the copious and offensive expectoration took place, he had, as already mentioned, suffered from hectic fever.

The stethoscope, applied to the left axilla, indicated strong pectoriloquism with cavernous cough: in the right axilla, pectoriloquism was also evident: and there was a mixture of cavernous and sibilant rales. The natural respiration was scarcely audible in any part: the sound on percussion was very dull over two-thirds of the chest.

I prescribed a weak solution of iodine, with the addition of some saturated tincture of conium, mixed with water of 120 degrees of heat,

to be inhaled for fifteen or twenty minutes, three times a day. I directed him to take a minim of a solution of acetate of morphia, containing a grain of the acetate in six minims, in a simple saline draught at bed-time, and to repeat this dose in an hour or two if necessary; to regulate the bowels by simple means; to wash the chest and upper part of the back with a mixture consisting of two parts of water, one of eau de Cologne, and one of vinegar; dipping a towel in the lotion for that purpose.

I shall confine myself to a general statement of the further particulars of this case, as its termination was so necessarily fatal.

On first using the inhalation, he experienced slight giddiness for a few minutes, and some sense of soreness with dryness in the tongue and throat; but the patient rather mentioned these sensations on being interrogated than complained of them; and they did not continue. He soon found that it afforded him great relief, the power of expectorating being remarkably facilitated; the cough also very much abating; the respiration becoming

comfortable; and the chest materially freed from oppression. In all respects, he improved in a surprising manner. At the end of a fortnight, the pulse ranged below 100; the looks and the strength were improved; and both he and his friends, flattered by this rapid amendment, anticipated an eventual recovery of health.

He had not quitted the house for several months, when he was tempted abroad by the favorable state of atmosphere on a fine day. The effect of the external air on his breathing and on his nervous system was remarkable. He could not meet the wind, mild and gentle as it was; and he was several times in danger of fainting. No injury ensued.

He repeated his out-door exercise, but was unfortunate in exposing himself to a cold wind. The cough became exceedingly harassing. His chest was affected with flying pains, which were soon concentrated at the lower part of the left side; in which situation the stethoscope indicated much sibilant rale.

For the relief of these symptoms, leeches and

a blister were applied, and the inhalation was changed for a mixture of conium with hydrocyanic acid. This mixture was highly effectual in relieving the irritation of the cough: and, at the end of a week, the use of the iodine mixture was resumed. But the access of inflammatory action and of irritation led to an activity of the disease which, although frequently mitigated, could not be effectually restrained. The respiration became most distressingly short; and he often expressed that he should "be suffocated with the phlegm," had he not been enabled to get rid of it by means of inhaling. The quantity of sputa was immense, and the odour extremely offensive. The disease, in its advanced state, was attended with the usual symptoms of colliquative diarrhœa, more or less alternating with night sweats, and with great œdema of the legs and feet. It would be useless to detail the progress of the case, which came to its fatal termination at the end of two months from the date of my first visit. He always expressed in strong

and grateful terms how much comfort and benefit he derived from the inhalation.

The following were the appearances found on examination after death: The pleura pulmonalis of the lungs on each side was universally and most firmly adherent to the pleura costalis. There was an excavation at the apex of the right lung, sufficiently large to contain a duck's egg; and this was lined with firm layers of coagulable lymph. There was also an excavation at the apex of the left lung, similarly lined. With the exception of a small part of the inferior lobe of each lung, tubercles en masse, and in many parts softened, constituting continuous ulceration, appeared. A considerable portion of each lung was hepatized.

Observations.—The want of success in this case cannot create surprise. I could not allow myself to entertain the least expectation of it. My object was to put to the test the powers of inhalation to mitigate the symptoms in an incurable case. In this respect, the result was in the

highest degree satisfactory; for previously, the medicines which had been administered gave little or no relief. It seems reasonable to believe that the formation of firm layers of coagulable lymph, mentioned in the large excavations, were the result of a curative action. Laennec, whose memory is so dear to medical science, a permanent authority on the diseases of the chest, expatiates on the curability of phthisis pulmonalis, and describes instances in which, on examination of patients who at length died from that or from some other disease, he found an old cavity produced by the softening of tubercles, or ulceration, changed into the state of cicatrix; its sides being lined by a fibro-cartilaginous substance.

In the case which I have related, the fibrinous layers might probably have been thus consolidated, if the patient could have recovered; but the disorganization of both lungs was too extensive to admit of cure, either from the efforts of nature, or the assistance of art.

The appearances on dissection confirmed the indications by the stethoscope. The pectori-

loquism and the cavernous cough were unequivocal signs of the extensive ulceration which had taken place. It is true that the stamp of phthisis pulmonalis, in this very advanced stage, was sufficiently obvious from the symptoms; but the more accurate information afforded by the instrument must be esteemed useful. It is, however, in the earlier, and what I hope may be termed the remediable state of phthisis pulmonalis, that the aid of the stethoscope is particularly valuable. Early diagnosis is of great importance; and this is so materially assisted by having recourse to auscultation and percussion, that we may often in this manner discover the existence of tubercles, at a period when the general signs might merely lead to the supposition of some derangement of the digestive organs, or of the nervous system. It is in the early stage of the disease that the physician has the opportunity of being most useful, and in which, more particularly, I have enjoyed the inexpressible satisfaction of witnessing the curative agency of inhalation. For a considerable period, and certainly long after that in which

the disease of the lungs had become incurable, in the case I have now related, the digestive functions were performed with considerable regularity; showing, in this case, if I may so express it, the independent nature of the pulmonary symptoms.

CASE II.

Phthisis Pulmonalis in the last stage; as in the former case, the disease evidently incurable, and rendered more inveterate by its complication with tubercles and ulceration in the intestines.

A gentleman, aged twenty, of scrophulous constitution, as shown by obstinate swellings of the glands of the neck in early youth, slight in figure, with a fairly proportioned chest, was very far advanced in the last stage of phthisis pulmonalis, when I was first consulted. The emaciation was extreme, and the debility so great that he could not walk across the room without assistance. The pulse was 150 in the minute; the inspirations 30. The nails were remarkably incurvated. The features were thin and contracted; presenting in a considerable degree the facies Hippocratica. The

circulation was so feebly performed, that the hands and feet were often extremely cold, and the fingers of purple hue; and yet the thermometer, applied under the tongue, indicated 100°. The feet and ankles were œdematous. The cough was very irritable, the expectoration difficult, and much pain, with tightness, was experienced over the chest, especially at the inferior part of the sternum. The tongue was morbidly red in the middle, with foul and whitish edges. He had urgent thirst, and was without appetite. The state of the bowels was irregular; but the chief tendency was to diarrhœa. The expectoration was flaky, white, offensive in odour, sometimes bloody, and gave a strongly coloured ring in the optical experiment. The nights were constantly disturbed by cough, and there were occasionally copious sweats, which had an offensive odour like that of foul earth. There was pectoriloquism under each clavicle near the axilla, and the cavernous cough was strongly marked.

I prescribed an inhalation of iodine with conium, the sixth of a grain of acetate of morphia

at night, and medicine in the day calculated to allay the intestinal irritation. I directed the chest to be washed with the compound vinegar lotion (page 7). The diet was made as nutritious as the weak digestive powers would allow.

Extremely debilitated as this patient was, he could use the inhaler without difficulty; thus affording a proof of the convenience of this simple apparatus. The relief which was obtained from this process in the course of a few days was most remarkable, and such as to exceed my utmost expectations. The patient's description of the effects of inhaling was, that it abated the cough remarkably, and rendered the expectoration, which before had been much suppressed, easy and free; from which change ensued a comfortable state of chest, with a great improvement in the breathing. He observed, that he felt the inhalation very sensibly traverse the chest; causing an agreeable sense of warmth. By means of the acetate of morphia, the nights were passed in comfort. On former occasions, when opiates had been given, they disagreed so

exceedingly, that he declared "the remedy was worse than the disease."

He proceeded in a course of alternate amendment and relapse for many weeks; suffering much more from painful irritation and disorder of the bowels than from the chest; till at length nature became exhausted. The intestinal irritation was much controlled by combining small doses of the hydrargyrus cum cretâ with the acetate of morphia. He used the inhalation regularly, almost up to the period of his death, and always described in strong terms the relief which it gave to his chest.

On examination of the body after death, the following appearances were presented: On each side there was considerable adhesion of the pleura pulmonalis to the pleura costalis. The superior lobe of the left lung exhibited a continued series of excavations. The upper part of the inferior lobe was filled with tubercles. At the apex of the right lung there was an excavation capable of holding about three ounces of fluid. At the inferior part of the lung the

tubercles were very numerous, and many of them just passing into the softened state. In the excavations there was some of the lining of thin fibrin, but less remarkable than in the last case. The mesenteric glands were greatly enlarged and hardened. Numerous miliary tubercles existed in the small intestines; and in the ileum there were several patches of ulceration. The liver was large, and on its convex surface the lymphatic vessels exhibited a distinct and beautiful arborescence, such as I have rarely seen.

Observations.—If I had been governed by a rigid solicitude for the credit of the method of inhalation, I might have declined the application of the treatment to this case, which, at the first view, appeared quite hopeless. Opinion of the merit of remedies is usually referred only to the event; and a fatal termination of a case stands as a condemnation of any particular treatment, or at least cannot seem calculated to support and recommend it. But surely it is the duty of humanity to adopt the use of those means which we know from experience are the most

capable of relieving the symptoms; of mitigating the sufferings of the unfortunate patient; and thus rendering more smooth the path to death!

In the case just related, there was that state of intestinal disease so frequent in phthisis pulmonalis, and which is not only a source of highly painful irritation and disorder in the alimentary canal itself, but reflects its morbid influence also on the lungs, and aggravates the pulmonary symptoms. Such complication, therefore, must always increase the gloom of our prognosis.

The soothing effect of the acetate of morphia was very satisfactory; and we must regard this medicine as a valuable addition to modern remedies. It is more sedative than the ordinary preparations of opium, and, having a different mode of action, it is difficult to compare its strength with that of opium; but, as well as I can make the estimate, I should rate it with the tincture of opium, in the proportion of a grain of the solid acetate to forty minims of the tincture. For the relief of severe pain, I should give tincture

of opium, or the solid extract, to a patient with whom opium did not disagree, in preference to any other preparation; having most reliance on all the properties of opium combined, where I wish to prescribe this medicine distinctly as an *anodyne*. We well know also in how remarkable a degree great pain modifies the effects of opium; so that an individual who would be disordered in the most inconvenient manner by opium, if taking it for the purpose of procuring sleep, could have recourse to it in free doses with every good result, when using it as a remedy for severe pain. Yet there is an occasional exception even to this statement; and in such instances the acetate of morphia may be employed most advantageously as an anodyne.

The diarrhœa to which I have alluded was attended with much pain, and the excretions were very unnatural in odour and colour. To correct the secreting functions, I prescribed the small doses of mercury and chalk joined with the morphia, and certainly with advantage. I strongly disapprove of the employment of mer-

cury in pure phthisis pulmonalis: nor indeed am I aware that it has many advocates in the treatment of this disease.

I proceed now to the more agreeable task of relating cases serving to exhibit in favourable colours the principles of treatment which it is the object of these pages to recommend.

CASE III.

Hæmoptysis, succeeded by ulceration; hectic fever, well marked; from all concurrent symptoms the existence of phthisis pulmonalis established; the curative powers of iodine inhalation strongly displayed.

A female, aged thirty-four, of delicate form, with rather narrow yet not an ill-formed chest, of fair complexion, with dark eyes and white teeth, the mother of several children, having been much debilitated by three miscarriages within the last two years, and suffering from a severe cough, consulted me in February of the present year. In the history of her case, she related that, four years ago, she first contracted a violent catarrhal cough, which had since continued

always troublesome, with the exception of an intermission in the summer months; that in January she had coughed up blood to the amount of a teacupful; and from that time had been affected with constant cough, pains of the chest, with quickened and difficult respiration, frequent palpitation of the heart, inability to lie on the right side, and one very distinct paroxysm of hectic fever in the middle of the day, and a slighter one in the evening. There were copious night sweats: she was much wasted in flesh: the catamenia had been suspended two months: the pulse was 120; the animal heat 99°: the expectoration was in quantity about four ounces in the twenty-four hours, of a general puriform appearance, and gave a ring of colours in the optical experiment: the digestive functions were not much disturbed; but the urine deposited much lateritious sediment.

The following indications appeared from the stethoscope and percussion*: The voice was

* In this and some of the following cases I had the advantage of an examination by Dr. Edwin Harrison, in whose long experience and great tact in auscultation and percussion I have the highest confidence.

brought distinctly under the tube at the apex of the right lung, and there was obscure *gargouillement* at that part. The sound was dull at the upper part of the right lung, and very remarkably so on percussing the clavicle. The left lung was comparatively in a healthy state.

I prescribed a weak solution of iodine for the inhalation; internally, from one to two minims of the solution of acetate of morphia; and the following draught before rising in the morning:

℞ Magnes. sulphat ʒi.
Infus. rosæ ʒxii.
Acidi Hydrocyan. ♏i.
Syrupi tolutan. ʒi.—M. fiat haustus.

The chest all round was washed night and morning with the compound vinegar lotion.

The diet was limited to boiled fish, vegetables, and farinaceous puddings. At the end of a few days she found herself improved, and particularly as to the greater facility of expectorating, more ease of chest, and better respiration. The cough, however, still being very irritable, I added conium to the inhalation.

The mitigation of the symptoms was now very obvious; and, at the end of a fortnight, the amendment was great: but about this period she took cold, and suffered severely for twenty-four hours from disorder of the bowels and from spasms which appeared to proceed from uterine irritation. The cough became more irritable; but otherwise the pulmonary symptoms were not aggravated. I changed the inhaling mixture for one consisting of conium and prussic acid. This indisposition soon yielded to treatment, and the iodine inhalation with conium was resumed, and with an increased proportion of iodine. At the end of a month her appearance was remarkably improved, and all the symptoms were relieved. The pulse was reduced to 80; the animal heat to 95°; the respiration appeared unembarrassed; the cough was comparatively slight; the sputa small in quantity, and much improved in character; there was no longer hectic fever; and the night sweats were much lessened. She had gained flesh, and some improvement of strength; yet she still complained of great debility.

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Syrupi tolutan. ʒi.—M. fiat haustus

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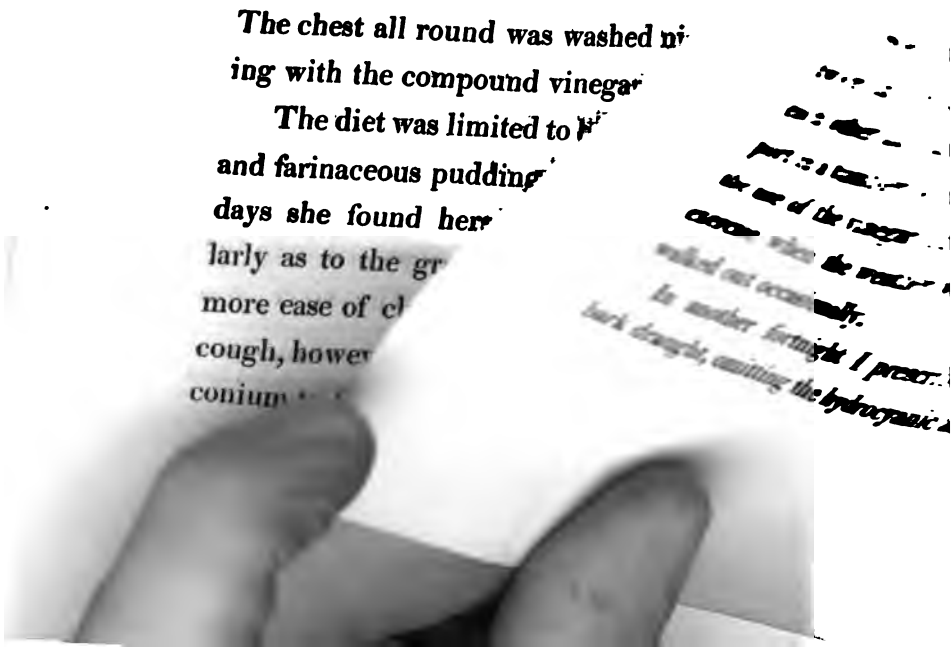

The mitigation of the symptoms was now day. very obvious; and, at the end of a fortnight, the cata- amendment was great: but about this period she lapsed, took cold, and suffered severely for twenty-four further hours from disorder of the bowels and from r the last spasms which appeared to proceed from uterine She im- irritation. The cough became more irritable. onger, that but otherwise the pulmonary symptoms were as ch altogether aggravated. I changed the inhaling mixture to years. one consisting of conium and prussic acid. The a distant part of indisposition soon yielded to treatment, and the ility of ascertaining iodine inhalation with conium was resumed est by auscultation; with an increased proportion of iodine. n of hearing that she end of a month her appearance was l. improved, and all the symptoms The pulse was reduced to 95°; the respiration the cough was with high irritation. The existence of tubercles small in The utility of inhalation sufficiently well shewn, as mate- rially by the removal of the symptoms.

CASE IV.

A married woman, aged forty, of delicate appearance, fair, with red hair, having a contracted chest, laboured under a severe cough,

She had been most attentive in the use of the inhalation three times a day, and extolled it as the source of her improvement. For the last week she had discontinued the morphia at night, and took no other medicine than the mild aperient draught occasionally. The most urgent symptoms being subdued, I now directed my attention to the improvement of the strength. I prescribed the following draught:

℞ Acidi hydrocyan. ♏i.
Decoct. cinchon. ℥i.
Mist. amygd. ℥ss.
Aquæ menth. virid. ℥ii.—M. fiat haustus bis die sumendus.

She was desired to use the inhalation only twice in the day. She took mild animal food each other day, and at dinner two ounces of old port in a tumbler of cold water. She continued the use of the vinegar lotion. She took carriage exercise when the weather was favourable, and walked out occasionally.

In another fortnight I prescribed a saline bark draught, omitting the hydrocyanic acid, and

allowed her to take meat or poultry every day. She continued to amend regularly. The catamenia returned. Three months having elapsed, she had recovered so completely that no further treatment appeared to be necessary. For the last week she had inhaled only once a day. She improved in flesh, and was so much stronger, that she declared herself better in health altogether than she had been for six or seven years.

This lady having removed to a distant part of the country, I have no opportunity of ascertaining the present state of her chest by auscultation; but I have the satisfaction of hearing that she continues perfectly well.

CASE IV.

Bronchitis, attended with high irritation. The existence of tubercles questionable. The utility of inhalation sufficiently well shewn, as materially assisting the removal of the symptoms.

A married woman, aged forty, of delicate appearance, fair, with red hair, having a contracted chest, laboured under a severe cough,

which had been existing, more or less, for two years, but was lately so much aggravated, and accompanied with such wasting of flesh, loss of sleep, with night sweats, and reduction of the general strength, that the inmates of the house in which she lodged were alarmed from day to day "lest she should suddenly die." Four months before that period she had been delivered of a child, and the catamenia had not returned.

I found the pulse 140 in the minute, the inspirations 36, the animal heat 102°, and learnt that every day she was sensibly affected with chills and heats. She complained of much pain in breathing, especially at the inferior part of the sternum, and between the scapulæ. She expectorated with difficulty, and the sputa were muco-puriform in appearance, but not copious. In the optical experiment the coloured ring was rather faint. There was strong resonance in the right axilla, scarcely any in the left, and more resonance at the apex of the right lung than of the left. The sound was also more dull under the right clavicle than the left; there

were mucous and sibilant rales on the right side; and there was mucous rale over the whole of the left side of the chest. There was no decided pectoriloquism.

The digestive organs were not in a healthy state; the tongue was much coated; the appetite was lost; there was much thirst; in a word, irritation prevailed over the whole system.

I directed leeches to the right side of the chest, and to the lower part of the sternum; a blister between the shoulders; acetate of morphia at night; a mixture in the day with sulphate of magnesia, infusion of roses, and one-minim doses of hydrocyanic acid; and an inhaling mixture composed of conium, hydrocyanic acid, and an alcoholic tincture of ipecacuanha.

From these measures, the urgent symptoms became speedily relieved; and, at the end of a few days, I thought it expedient to direct the use of the iodine inhalation with conium. One minim of the acetate solution at night, and one dose of the mixture before mentioned in the day, were continued. At this time the pulse was 96,

and the animal heat 98. The expectoration was free, not altered in appearance, and gave a faint orange colour on inspection between the plates of glass. The sharp pain of the chest was exchanged for an uneasy sense of weight, tightness, and soreness. The cough, although less irritable than before, was still very troublesome; and she complained that it fatigued and subdued her very much. Her nights had been comfortably soothed by the sedative. The hectic fever was abated.

She used the inhalation for twenty minutes three times a day; and at the end of a week the proportion of the iodine was increased, and the conium was omitted. This change was made on account of the diminution of all the symptoms, which no longer required the assistance of the narcotic ingredient, and the consideration due to the general debility and the feeble state of the stomach. The use of the sedatives, the hydrocyanic acid, and the morphia, was also discontinued. I prescribed a saline cascarilla draught to be taken twice a day.

In another fortnight the patient was satisfactorily convalescent. The pulse now ranged from 70 to 76; the animal heat was reduced to 95°; the respiration was natural; the cough was so slight as to be scarcely troublesome; there was a return of the catamenia; the general functions of the animal economy were fast returning to health.

The inhalation was continued twice a day for another week; and once a day for a short time. All internal medicine was discontinued. This woman's health, in the course of a few weeks, became well established.

Observations.—There was not sufficient reason in this case to suspect ulceration; although I think the existence of tubercles highly probable. The signs of congestion in the right lung were manifest, and the mucous membrane of the bronchiæ of each lung was in a state of morbid irritation. I was much satisfied with the sedative influence of the first inhaling mixture, and still more with the curative power of the iodine.

The degree of animal heat was remarkably

high, and, together with the rapid pulse, was indicative of much pulmonary irritation. I say irritation, rather than active inflammation; and the subsidence of the symptoms chiefly from the employment of sedative treatment confirms this view. I conceive also that the morbid action was chiefly bronchial, and that with this form of disease the nervous system always sympathizes more actively than when the lungs themselves, in their immediate texture, are more particularly affected.

I think it probable that this woman has tubercles, and that she is liable at some future day to become the subject of phthisis pulmonalis. If this supposition of tubercles be correct, it further explains the remarkable degree of irritation which was produced.

The patient looks well, and expresses herself to be quite comfortable in her feelings, at the present time; six months having elapsed since the illness which I have just described.

CASE V.

Chronic cough, apparently depending on tuberculous irritation, cured by the inhalation of iodine and hemlock

A gentleman, aged twenty-five, tall and slight, his chest well proportioned to his figure, first suffered from cough five years ago, from which he had never since been free, although it always became alleviated in the summer months. He consulted me at the end of March in this year. He related that his cough had been so severe in December, that his medical advisers put him on a fish and vegetable diet, with entire abstinence from fermented liquor. His constitution was highly irritable; he was of the nervous temperament; his system could not accommodate itself to this privation of stimulus, for he had always been accustomed to a generous diet, and he found himself losing strength and flesh, was affected with night perspirations, general pains, but especially in the loins and the legs; and, after a fortnight, he resumed a supporting diet, with the use of a little wine; but he found that, if he went

beyond a small quantity, if he talked much, or sat in a hot room, his cough became severely troublesome.

I found this patient looking thin and weak; the pulse 96, the animal heat 98°, the respirations 28 in the minute; the tongue was coated with dark white fur. Under the stethoscope the voice produced remarkable resonance on the right side of the chest, at its upper part, and the respiration was not very audible over a considerable portion; the sound also being dull; while, on the left side, the indications were good. The cough was exceedingly irritable, hard and sonorous, unattended with secretion.

The digestive organs were not in a healthy state. His appetite could not easily be satisfied; and yet he had been losing flesh. He did not feel himself nourished and strengthened by his food. There was inactivity of the bowels. The urine gave a copious deposition of lateritious sediment.

I prescribed a morning draught with sulphate of magnesia, infusion of roses, and syrup of tolu;

a saline draught at night; and in each of these draughts a minim dose of hydrocyanic acid; an inhalation with a weak solution of iodine; a diet regulated as to quality, and quantity, and the hours of refreshment; but I did not debar him from animal food, nor from two glasses of wine at dinner, a little diluted with water. I changed his hour of dining from seven to two, and directed him to take a supper of gruel and milk, or bread and milk, with the addition of a fresh egg boiled, when his appetite was importunate.

Such was the extraordinary irritability of the cough, attended with a harassing tickling in the trachea, that I found it expedient to add some conium to the iodine; and this had the effect of softening the inhalation remarkably, to use the language of the patient, and of rendering its operation very soothing.

I directed him to wash the chest with the compound vinegar lotion, rendered slightly tepid, and that, having dried the surface, he should use the flesh-brush as long as he could do so without fatigue. The cough became surprisingly re-

lieved in the course of a week, the pulse reduced to 84, the animal heat to 97°, and the respiration much improved. The urine deposited a large quantity of mucus, still with some lateritious sediment. He was very sensible of the advantage of dining at an early hour; his digestive functions were improved: he had before complained of great inconvenience from flatus: I did not find reason to think unfavourably of the action of the liver. He could now use a larger proportion of the iodine, still however combined with conium. He praised the effects of the inhalation in the strongest terms: he felt "that it gave a pleasing warmth to his whole chest, a lightness and comfortable freedom from oppression, which before had often greatly distressed him;" and the cough was remarkably mitigated.

But he still complained of languor and debility, and was anxious to see himself improve in flesh. I prescribed a mixture consisting of an infusion of the cortical part of sarsaparilla in lime water, with the addition of concentrated syrup of sarsaparilla, and Brandish's alkaline

liquor, to be taken mixed with an equal portion of hot milk; and some mild aperient pills, for the regulation of the bowels. He took horse or carriage exercise according to the weather: he was a person of very active habits.

I have stated that no secretion had attended his cough; but he informed me that, on three occasions, immediately after inhaling, he coughed up very small yellow substances, and that his chest was sensibly relieved by getting rid of them.

The patient improved progressively and regularly in all respects. The digestive functions were now healthily performed; and the cough almost entirely ceased. He entered on the use of the graduated shower-bath—graduated as to the temperature and the quantity of water, and the frequency of its repetition. It agreed perfectly, and afforded him great benefit. He made use of dumb-bells, with a view to strengthen the muscles of the chest.

At the end of two months he expressed him-

self as enjoying the feelings of health. The pulse ranged from 70 to 76; the animal heat was 96°; the inspirations were 18 in the minute; he had recovered flesh and strength, so as to appear to his friends, and to feel himself, far better than he had been for many years; he could take active exercise, and even ascend several flights of stairs, without any embarrassment in his breathing, which before became difficult on ascending quickly even one flight of stairs; he had, in the last fortnight, lessened the frequency of using the inhalation to twice and once a day, and without the hemlock. He now discontinued all treatment, and set out on a tour. The stethoscope indicated a more free and clear state of the respiration; and there was scarcely any difference between the sound of the right and left side. I have the satisfaction of hearing from him that he continues perfectly well.

Observations.—When all the circumstances of this case are considered, those revealed by means of auscultation and percussion, those which appear from the patient's own history,

and the symptoms themselves, it seems reasonable to believe that tubercles existed. Certainly, from no means that had ever before been tried did any benefit arise comparable with that produced by the inhalation. Admitting, for the sake of argument, that there were tubercles, it may be asked, what became of them? Was absorption effected, or were they rendered merely quiescent? Some pathologists contend for the power of the absorbents to remove tubercles, while it is denied by others. Much controversy has also arisen as to the nature of tubercles. The most probable opinion, I conceive, is, that they are secreted products; and that, as one set of vessels may deposit, so another set of vessels may take them away. When these foreign bodies, however, from their number, their bulk, or other causes, produce great irritation, the patient either speedily falls a victim to the extreme disturbance produced in the constitution, the hectic fever, and consequent exhaustion (the tubercles, for the most part or altogether, remaining entire), or the process of softening

takes place, causing ulceration and a protraction of the disease. If this be extensive, and more especially if the lungs in each side of the chest be much involved in the disease, a fatal event must be expected. If ulceration of only limited extent be formed, and the remainder of the lungs be healthy, we may indulge the hope of adopting a treatment that may prove speedily useful, and assist Nature's operations towards an eventual cure. The softening in question appears to be the natural mode of cure for that condition of lung when tubercles cease to be quiescent: and I have every reason to believe that, on the one hand, this curative process is very favourably assisted by the inhalation of iodine, so as to be followed by cicatrization; and that, on the other hand, in earlier periods of the disease, the tubercular irritation is gradually diminished by its influence, without the necessity of softening taking place, and that, in the most favourable cases, it may be wholly removed. Yet it is incumbent on the patient who has been so fortunate as to recover health, ever after to lead a life

of temperance and exceeding care. Fresh tubercles may be produced, or those which yet exist, but which are quiescent, may become developed into dangerous activity. The tenure of life, under these circumstances, must be held on terms of caution, and not of careless confidence.

It will perhaps be objected to my praise of the inhaling treatment, that, as internal remedies were administered, the benefit might with as much propriety be ascribed to their operation as to the inhalation. In answer, I must observe, that an immediate and decided relief to the cough was given by the inhalation, such as could not be ascribed to any other cause; that various medicines, which had been tried, had proved ineffectual; and that, in similar cases, I have wholly failed to produce the same benefit by internal medicines alone.

Disease of the lungs is, for the most part, more or less complicated with some error of other organs; and it would be contrary to good sense to pursue an exclusive local treatment, very highly and, I may even venture to say, essentially import-

ant as I consider that local treatment to be. Even the surgeon, who has immediate access to the seat of disease, justly considers it necessary to join constitutional with local treatment. Not, however, I must here observe, that I consider the influence of the inhalation to be merely local: for example, the patient expresses that from the iodine he finds an improvement of the appetite and a greater regularity of the bowels; from the conium a universal, soothing effect, and relief from constitutional irritation: yet, in speaking of the operation of inhalation as principally local, we should have a sufficient argument for our purpose. To amend the condition of the functions of a vital organ of such importance as the lungs, is, indirectly to alter and improve the whole system in the most certain manner.

I should think it a waste of argument to advocate the propriety of treating phthisis pulmonalis in all its stages by a general method, in combination with the local remedies by inhalation: such method comprehending the employment of suitable internal medicines; the regula-

tion of the diet; the situation of residence; general regimen; and clothing.

Laennec, when speaking of the treatment of phthisis pulmonalis, thus sums up his observations: "In order to make a direct attack upon the disease, we ought probably to be able to correct an unknown alteration in the assimilation or nutrition; that is, an alteration in the state of the fluids of the body*." This distinguished physician, finding from sad experience how untractable a disease pulmonary consumption had always proved, resorted to his invention. He was of opinion, as I learnt from him in frequent conversations on the subject, that the sea air, on a favourable coast, was more useful to a patient than that of an inland situation; and hence, rather fancifully it may be thought, he attempted to establish, in a small ward of the Clinical Hospital, an artificial marine atmosphere, by means of fresh sea weed. The results, although not very distinct, appear to have afforded him some little satisfaction. He thus expresses himself:

* Forbes's Translation, page 376.

"Twelve consumptive patients were subjected to this treatment for four months. In all of them the disease remained stationary; and in some the emaciation and hectic fever were sensibly lessened. Nine of them, considering themselves cured, left the hospital, although I must admit, that only one of these afforded any real hope of cure. Our supply of sea weed having failed towards spring, owing to the difficulty of procuring it, the disease from this time assumed a rapid progress in the three remaining patients, and speedily carried them to the grave."

The exhalation from the sea weed* would but in a very small degree partake of the nature of a marine atmosphere.

Dr. Murray, of Belfast, has lately recommended†, as a mode of treatment, the introduction of iodine diffused through warm aqueous vapour into the atmosphere of the apartment, and he extols its effects; yet how infinitely more valuable, as being certain, definite, and perfectly

* The iodine is obtained, by means of a chemical process, from marine plants.

† A Treatise on Animal Heat, &c.

manageable, must be the direct inspiration of the iodine vapour from a tubular glass apparatus, administered in precise and graduated doses, either separately or combined with other efficacious substances, according to the judgment of the practitioner in the particular circumstances of the case.

CASE VI.

Phthisis Pulmonalis; tubercles in each lung; great probability of an ulcer at the apex of the right lung; hectic fever present; the iodine inhalation highly beneficial; the tubercular irritation removed; and the patient restored to health.

A gentleman, aged forty-nine, short and slight, and evidently of weak constitution, subject to winter cough, was seized with hæmoptysis some months before the attack of illness which I am about to describe; but the discharge of blood was not large, and did not continue beyond twenty-four hours. He appeared to recover his usual state of health, which was always delicate.

I was consulted in June, and found him affected with very irritable cough, short breath-

ing, a painful state of the chest, with oppression, very disturbed sleep, and night perspirations.

The digestive functions were not materially impaired; yet the appetite was not so good as usual, and the urine deposited lateritious sediment. The bowels were regular, and the liver acted properly.

The expectoration was copious, consistent, of greenish appearance, of faint, disagreeable odour, and it afforded a coloured ring when examined as before described.

He complained of great debility. The pulse was only 60; but I learnt that in health it was of the remarkable slowness of 44 and 46. He had a hectic paroxysm about noon every day. The animal heat was 100. His habits were very temperate; and for many years he had refrained from all fermented liquors.

The following were the indications by the stethoscope and percussion: Pectoriloquism at the apex of the right lung, and suspicious at the apex of the left; dull sound in general on the right side, especially at the upper part; dull also

at the upper part of the left lung. I drew the conclusion that each lung was tuberculated; that tubercles occupied the right extensively; and that there was, in all probability, some ulceration at its apex.

I directed a blister to the chest; a minim dose of hydrocyanic acid, at noon and at night, in infusion of roses, adding to the day draught some sulphate of magnesia. I prohibited animal food. He entered immediately on the use of the iodine inhalation combined with conium. I enjoined great quiet; for he found himself unfavourably excited by any bodily exercise or by mental exertion.

The chest was much relieved by the blister. On the healing of the skin, I directed the use of the compound vinegar lotion, to be applied just tepid, and afterwards the use of the flesh-brush. He was sensible of a very soothing influence from the inhalation: it caused an easy expectoration, relieved the cough most satisfactorily, and rendered the breathing at once comfortable.

In two days, the pulse was 56; the animal

heat 98°; the sputa of a creamy white, and still of a faint odour. The tongue was coated with whitish flakes, and the gums were spongy, as if from mercury: but there was no ptyalism. This state of the tongue and gums was in part produced by the inhalation; an effect, particularly as regards the tongue, which I have occasionally witnessed. But these effects either pass away, or become too slight to be regarded, as the patient becomes accustomed to the use of the inhalation.

As there appeared to be yet too much excitement in the system, I increased the dose of hydrocyanic acid to three minims twice a day; but I did not continue these proportions more than three days; for, as the symptoms abated, I resumed the dose of one minim.

The whole plan of treatment agreed perfectly. In a fortnight, the state of the patient was surprisingly ameliorated; and the appetite was much improved. I allowed him to eat boiled fish or mild animal food, on alternate days.

At the end of three weeks, the amendment

was still more confirmed. The pulse was reduced to its natural standard of 44; the animal heat to 97°; the respiration was quite comfortable; the cough very slight; the sputa small in quantity, and consisting chiefly of frothy mucus; the nights were passed with good sleep, and freedom from perspiration; the tongue was almost clean, and the gums nearly restored to their natural state, although the inhalation had been regularly continued three times a day; the urine was clear.

I never witnessed in so short a time such a happy change in the looks as this gentleman displayed. The hectic flush of the cheek had passed away; there was a cheerful expression of countenance; and there was some recovery of flesh. He spoke in the highest terms of praise of the inhalation; and, as this gentleman was very intelligent, and minute in his observations, I attached the more importance to his report. He stated, that it invariably gave ease and comfort to his chest; quickly improving the breathing, and relieving the cough.

The circulation being now free from excite-

ment, and the opportunity therefore presenting itself for the adoption of more restorative means, I prescribed the infusion of the cortical part of sarsaparilla in lime water, with the addition of the strong syrup of the cortical part, and Brandish's alkaline liquor, to be taken twice a day, in admixture with an equal portion of hot milk.

The patient continued to improve progressively in the most favourable manner. Not one untoward circumstance occurred. He reduced the use of the inhalation to twice a day, in three weeks from the commencement; in five weeks, to once; and discontinued it wholly at the end of two months. At this period he was free from all symptoms of illness; quite relieved from cough, with recovered flesh and strength; the pulse at its natural standard of 44; the animal heat 96°; the appetite, the digestive functions, and the sleep, all natural. At the present time (October), he continues to find himself in much better health than he has been for two years past. His breathing is so greatly improved, that he can walk six or seven miles a day without inconvenience.

Observations.— I advert to this case with infinite satisfaction, as proving the great benefit of iodine inhalation. I had the fullest persuasion of the existence of tubercles; and could scarcely doubt the presence of some ulceration. The patient had made previous trials of medicines for the cough, without any apparent good effect. The bad symptoms were in active progress when I commenced my treatment.

The pain of the chest indicated pleuritic inflammation; but, as it was of the sub-acute kind, and as the constitution of the patient was delicate, I was induced to avoid the detraction of blood in any manner, and preferred the local depletion and counter-irritation which a blister so conveniently affords.

It should be held as an axiom that general blood-letting is to be practised on consumptive patients with the utmost circumspection; and even locally it is to be considered applicable only when there is some degree of inflammation, and in persons not too much enfeebled to allow of any loss of blood.

Laennec expresses his opinion, "that bleeding can neither prevent the formation of tubercles, nor cure them when formed. It ought never to be employed in the treatment of consumption, except to remove inflammation or active determinations of blood, with which the disease may be complicated: beyond this, its operation can only tend to a useless loss of strength."

My own opinion coincides entirely with that of Laennec, and of Louis, who has also written ably on Phthisis, that the pains which occasionally affect the chest in pulmonary consumption are the offspring of accidental pleurisies, and are not to be referred to the tubercles, which, for the most part, do not produce any pain.

Although I place my great dependance on the use of inhalations, I consider it, in most instances, useful or necessary to call the power of medicines internally to my aid. During the state of hectic irritation, I usually prescribe very small doses of the hydrocyanic acid, as from one to three minims, in combination with a saline

nitre draught, or cooling saline aperient as mentioned in this case; but I strongly object to the administration of considerable doses of this powerful agent. My purpose, with this medicine, as an auxiliary, is sufficiently answered by small doses, and which can be administered without apprehension of disagreeable consequences.

I think it a valuable sedative, but do not attach any other importance to its properties; and I believe that the warmest advocates of this medicine, as a curative remedy in phthisis, have found themselves quite disappointed in its effects.

From the time of Hippocrates down to the present, much attention has been paid to the appearances of the expectoration, to deduce therefrom conclusions as to the state of the lungs. The leading point which engages the mind of the practitioner is the discrimination between pus and mucus. Undoubtedly the indications afforded by the sputa are very instructive, and it is of great importance that we should well understand the nature of their numerous varieties; but we should be careful not to form a precipitate

prognosis from this kind of evidence, however clearly it may be understood. A patient may be in a state of hazard, from tubercles, whose expectoration is entirely of a mucous nature; and, as in the case which I have just related, may recover, although the expectoration is unequivocally purulent.

As we see exemplified in inflammation of the urethra, and in the conjunctive membrane of the eye, the altered secretion may be entirely puriform in its nature, although there is no breach of surface. The aid of the stethoscope is necessary to verify our conjectures respecting the existence of an ulcer in the disease of the lungs; and, since we are in possession of this valuable instrument of diagnosis, the examination of the sputa, with the view to determine the fact of ulceration, is of secondary consequence. Yet, I repeat, as frequently indicative of the degree of membranous irritation, and of various circumstances in the disease, it is incumbent on us to make a daily attentive observation of the sputa.

Chemists have exerted their ingenuity for the purpose of discriminating pus from mucus; but

not with sufficient success. The practitioner very naturally desires the convenience of some prompt method of forming his opinion. Hence the simple expedient is commonly resorted to of mixing the expectorated matter with water; and it is supposed that the floating of it on the surface is a sign of mucus, and the sinking of it to the bottom is a sign of pus. It is a fact, however, that although the specific gravity of pus is greater than that of mucus, yet the floating on the surface is not a proof of the absence of pus; for it is always more or less blended with mucus, and may be kept for a while from sinking by the bubbles of air which are mixed with the bronchial secretion. Laennec thinks that, "with the exception of about a 1000th part, the whole of the expectoration is the product of the pulmonary catarrh, with which the tuberculous affection is almost always complicated."

I am not aware how far this estimate may be correct; but if it be an approximation to the truth, it shews that we are not to expect any striking indications of the presence of pus by

any of the usual tests. Having bestowed much consideration on the subject, I am led to give the preference to the optical experiment to which I have alluded*. I employ two circular pieces of well-selected plate glass, interposing a small portion of the matter to be examined between them, and hold the glasses, placed closely and evenly together, before a wax taper; for the clearer the light, the more distinct is the effect produced. If the sputa contain pus, circles of coloured light will appear, which, when well marked, are red and green alternately; but if it be altogether a mucous secretion, no such colours are produced. Pure pus the most strikingly displays this resemblance of a small rainbow†, and the colours of the ring are well marked according to the proportion of true pus in the mass of matter. So far then we have a simple and ready

* This method of examining the expectorated matter is described and recommended by the late Dr. Young, in his Treatise on Consumptive Diseases.

† The explanation is simply this: that pus, containing globules, causes a refraction and reflection of the rays of light; while mucus is free from globules.

mode of judging of the nature of the expectoration in pulmonary disease.

The experienced observer will, however, for the most part, satisfy himself sufficiently of the characters of the expectoration by its sensible signs, as the form, consistence, colour, and smell; and the quantity will further be instructive as to the degree of irritation which is present.

In the present case, much advantage was obtained from the application of the blister, in removing the pain arising from subacute inflammation of the pleural membrane.

The auxiliary benefit which may be derived from counter-irritation is always to be considered.

Hippocrates and Celsus advised the making of several eschars in different parts of the body, by means of the actual cautery, on the joint principle of derivation and counter-irritation. This barbarous treatment in phthisis pulmonalis deserves only to be reprobated; for the suffering is certain, and the advantage doubtful. Neither am I disposed to give a general recommendation

of the other modes of obtaining purulent secretion from the surface; as by means of issues formed by caustic, or moxa, or by seton. This treatment may be proper when the sputa, being of purulent appearance, continue very copious, notwithstanding that the iodine inhalation has been attentively employed.

The tartar emetic ointment sometimes proves useful; but care should be taken not to excite the skin to the greatest degree; for, in certain constitutions, in which irritability and debility both prevail, there is the danger that the pustules may proceed to very troublesome ulceration, and prove the source of highly injurious irritation. Eroding escharotic applications are improper.

It happens with some persons that even a blister causes a degree of irritation too disturbing to the general system. I have used, with advantage, as a convenient counter-irritant, a saturated infusion of cantharides in strong acetic acid. It is a very manageable remedy, and in many ways highly convenient: if applied diluted, it will act as a rubefacient; if in its state of con-

centration, it will vesicate in a short time; it may be applied by means of a camel's hair brush to the smallest extent of surface, and in any situation; and it is less formidable treatment in appearance than the ordinary blister.

In cases where it is desirable to maintain a purulent secretion from the surface, and in which there may be objections to the use of seton or issue, we may find advantage from what is called a perpetual blister.

On the present subject Laennec offers the following observation: "The cases in which the excitement of discharges from the skin is most indicated, are, no doubt, those in which the suppression of an habitual discharge, or the repulsion of a cutaneous eruption, has appeared to be the cause of the disease." Of the cauteries he says, "I have used them, both actual and potential, extensively, in the treatment of phthisis, and I must confess that I have never obtained a cure in any case where they were employed." Latterly he restricted himself to the application of the caustic potass, commonly beneath the

clavicle, or in the supra-spinal fossa, so as to form eschars of eight or ten lines in diameter; but he did not insist upon the treatment. The French physicians practise much more on the ancient principle of remote derivation than the English; and hence, Laennec, when making use of blisters, directed their application to the arm, or the thigh, rather than to the chest. I give only partial credence to the doctrine. When active inflammation exists in the cavity of the chest, agreeably, I believe, to the general practice of the present day, I avoid the immediate local application of a blister; but, if there be only slight inflammatory action, as probably indicated by pain without fever, I choose to apply the remedy as near as can be done to the part affected; finding that the good results support this practice, in opposition to the contrary theory.

But, as a general principle of treatment, and one on which I have acted in the large majority of cases, I am desirous of avoiding every kind of painful counter-irritant; to place my chief confidence in the influence of the inhalations; and

to adopt the very agreeable treatment of washing the chest with the compound vinegar lotion, in conjunction with friction by means of the flesh brush.

With regard to the means of internal treatment, in the progress of the disease and at the period of convalescence, I will in this place offer some observations.

We should exercise great caution in the employment of stimulants and tonics, whenever any degree of pulmonary or pleuritic inflammation exists. The debility, of which the patient feelingly complains, is not to be successfully combated by these means; and, by their excitement to the circulation, they tend considerably to aggravate the disease.

We have in reality to steer a middle course; namely, on the one hand, to husband the enfeebled energies of the constitution, by avoiding, as much as is in our power, depletion and lowering treatment; while, on the other hand, we refrain from the unseasonable use of any means which increase irritation and tend to produce

inflammation. Yet I must add, that the consumptive invalid is always prone to suffer from real debility; and when the period arrives of the cessation of inflammatory action, we may carefully enter on the use of tonic and restorative medicine, with a corresponding addition to the dietetic regimen. Nor are such means forbidden by the occasional symptoms of hectic irritation which so commonly occur, care being taken to choose the interval of perfect freedom from fever for the administration of any stimulant; and the propriety of our treatment will be decided by the effects produced upon the pulse and upon the skin. A slower circulation taking place under the influence of a tonic and restorative plan of treatment, and the surface of the body becoming uniformly cool, are sure and satisfactory proofs of its propriety: but if the pulse should increase in frequency, with renewed heat of skin, we should immediately change our measures, and have recourse to sedative medicines and a cooling diet.

In the present case, the sarsaparilla with the

alkaline liquor* proved decidedly useful towards amending the state of the digestive organs; indirectly, therefore, assisting the establishment of the general strength.

Sometimes I give the preference to the more tonic properties of the sulphate of quinine; or of decoction of bark, or infusion of cascarilla, with carbonate of potash and lemon juice, as an effervescing draught: but I strongly disapprove of all spirituous tinctures, which contain but little of the substance of the medicine, and tend to heat and stimulate in a greater ratio than to strengthen.

On the same principle, of making it our study to improve the strength, rather than to increase the action of the heart and arteries, we should direct a diet that is mild and nutritious, and at the same time easily digestible in its nature, and the least stimulating. In that state of debility which is unattended with inflammatory action,

* This preparation, being imperfectly caustic, is a much milder alkaline remedy than the liquor potassæ of the Pharmacopœia. I find it a very useful medicine.

it is not only admissible, but even useful, to administer, with the food, a small quantity of wine, old and pure in quality, more or less diluted with water; or a little sound porter. It appears to me that ale is too heating a beverage for persons affected with pulmonary disease.

CASE VII.

Empyema, with tubercles in the lungs; convalescence promising recovery; exposure to cold and wet, producing a severe relapse of all the symptoms, and which proved eventually fatal.

A gentleman, aged twenty-five, exposed himself, on one of the coldest days of January 1829, on the outside of a coach, having fasted for a considerable time. He felt himself seized with the cold *(coup de vent)* in the most distressing degree, and in a few hours after, when sitting in a warm apartment, he was affected with symptoms of fever. This indisposition was shortly removed; but he exposed himself again to a cold wind, the east, and very soon experienced a severe pain in the region of the heart, rendering

a deep inspiration difficult, but unattended with cough.

The treatment was so far successful, that he passed the summer without much cause of complaint, until August; when, in walking, he was alarmed by suddenly coughing up about three ounces of blood. This was succeeded by an expectoration which was pronounced to be purulent: it was often mixed with blood. He was not much affected with cough. He recovered in October. In November he took cold, and soon discovered a hard swelling between the fifth and sixth rib on the left side, which continued very severely painful for six weeks. Leeches were applied, and afterwards poultices. An abscess formed, which was opened by the surgeon. He was relieved by a free discharge of thin pus mixed with blood: but in about a fortnight the character of his disease was changed; as he became affected with considerable cough, and puriform and sometimes bloody expectoration. When I first saw this gentleman, I found him much emaciated, and in a state of great debility;

the pulse ranged from 110 to 120; the animal heat was 99°: the heat of skin was temperate; but it was evident, from his report, that he had a slight paroxysm of hectic fever in the middle of every day. A deep inspiration produced some sense of pain, internally, in the situation of the abscess; but still more that of tightness. His sleep was not much disturbed. He usually had slight perspirations at night. The digestive functions appeared to be healthily performed, and the appetite was almost natural.

The fifth, sixth, and seventh ribs were elevated, giving to the side a very swollen appearance. The orifice of the abscess had its edges quite inverted. There was a slight purulent discharge; and it was remarkable that this alternated with the expectoration: when the one was free, the other was very slight. Of this fact I was several times an eye witness. By auscultation and percussion the following evidence was afforded: Considerable resonance in the upper part of the right lung, and still more remarkable in the right axilla. Imperfect respiration in the

upper part of the left lung; and below also it was imperfect and more distant.

Sound duller than natural on the right side; dull at the inferior part of the left, especially when the patient was in the erect position; and becoming clearer when he lay on the opposite side. I drew the inference that there were tubercles in the upper part of each lung, but particularly the right; that there was effusion into the cavity of the left pleura; that nature had performed the operation for empyema in producing the external abscess; and that, internally, a communication had been formed, by ulceration, between the bronchiæ and the pleura.

I directed the inhalation of iodine; the infusion of the cortical part of sarsaparilla with a small dose of alkaline liquor; and that, when he felt himself affected with any symptoms of hectic fever, he should take a minim dose of hydrocyanic acid in a saline draught. He was allowed to take mild animal food daily, and half a pint of sound porter, which agreed with him rather better than diluted wine. The chest to be

washed with the compound vinegar lotion. No inconvenient irritation was produced by the inhalation, and in a short time the expectoration ceased altogether to be bloody, although still purulent, as indicated by the optical experiment. The coloured ring was well marked.

The patient improved favourably and progressively, and expressed his persuasion that he received remarkable benefit from the inhalation. At the end of six weeks the pulse was reduced to 90, and the animal heat to 97°: there was a great improvement in the strength, and a considerable acquisition of bulk.

At this period he went into the country, being desired to continue the inhalation twice a day, and the use of the sarsaparilla mixture, to which was added a moderate dose of Battley's liquor cinchonæ cordifoliæ*. The hectic fever had for some time disappeared, and there was no occasion, therefore, for the hydrocyanic acid.

In the country he took horse exercise daily,

* A strong concentration of the infusion of bark, convenient from being in the liquid form.

and had recovered flesh and strength in so great a degree, that he informed me he was almost well. The abscess in the side appeared to be perfectly healed. He had relinquished the use of the inhalation, conceiving it to be no longer necessary.

He unluckily was overtaken in one of his riding excursions by a cold wind with rain, not sufficiently protected by clothing; and from this accident ensued an attack of rigors, followed by excessive perspiration; to which attack the name of ague was given. He lost his strength suddenly, and was confined to the house. Fresh inflammation of the pleura now took place, and the purulent secretion, which, as before, was discharged from the side and by expectoration alternately, became considerable. He quickly lost flesh and strength. With the exception of the empyema, his situation was exactly that of a person in the last stage of phthisis pulmonalis. There was every evidence of confirmed tubercular disease. The constitution by degrees yielded to such complicated causes of irritation;

and it was not in the power of medical treatment to do more than mitigate the symptoms, and sustain the fortitude of the unfortunate patient under his sufferings, which terminated in death in about two months.

Observations.—The early progress of this case, consequent to the treatment which I adopted, was in the highest degree satisfactory. I had the fullest conviction that the inhalation of iodine was very conducive to the amendment in the state of the chest, and which had reached to such a height, that recovery appeared to be certain. Too confident indeed in his returning powers, this gentleman indiscreetly exposed himself to wet and cold, and brought on that renewal and aggravation of disease which art could not oppose:—a strong lesson to the consumptive patient, upon whom it is ever incumbent to avoid, to the utmost of his power, all remote causes of injury, and especially a careless exposure to the vicissitudes of the atmosphere.

CASE V.

Ulcer of the larynx, with tubercles at the apex of the lung. The good effects of iodine inhalation well exemplified; although the termination of the case was fatal.

A journeyman printer, aged thirty-nine, of slight frame, and weak in constitution, with fairly proportioned chest, dated the commencement of his cough from a year and a half previous to the time when he consulted me. He was exceedingly emaciated; and his debility was such as to confine him to the chamber, and for the most part to his bed. He had lost his voice for six months. He stated that, some weeks before my visit, the cough had been dry, and barking in its sound. Now the secretion was excessive; for he expectorated at least a pint of muco-purulent matter every twenty-four hours; and a portion of this, examined with the lenses, &c. gave a well-marked coloured ring. It was offensive in odour, in part of a tenacious consistence, in part frothy; of mixed colours of white, green, and yellow; and sometimes tinged

with blood. The cough was violent, and especially in the night. The respiration was hurried and difficult; and when the sputa were much accumulated, he sometimes apprehended suffocation. The pulse was 120; the animal heat 98°. The tongue was coated with a viscid creamy fur. He had much difficulty in swallowing, liquids especially, and frequently the drink would return.

Upon a careful inspection, by which I obtained a view of the glottis, I could not discover any ulceration; but the velum pendulum palati, and the whole of the internal fauces, exhibited a swollen and an almost excoriated appearance. He was sensible of a distinct soreness, upon pressure of the upper part of the larynx.

The stethoscope, applied near the axilla, detected well-marked pectoriloquism; under the clavicle, for some extent, it denoted the respiration to be almost inaudible; and the sound at this part was very dull on percussion. On the right side the evidences were rather favourable. I found that, a few weeks previously, he had suf-

fered from excessive perspirations at night; but, at that time, they were comparatively slight. I directed a solution of the nitrate of silver, in the proportion of a drachm of the pure nitrate to an ounce of distilled water, to be applied by means of a camel's hair brush to every part of the fauces which was accessible; the use of iodine inhalation with hemlock; and the washing of the chest with the compound vinegar lotion. Internally, the sarsaparilla mixture before mentioned (p. 34), with the alkaline liquor, and small doses of liquor cinchonæ cordifoliæ, two or three times in the day; and at night, a minim of the solution of the acetate of morphia in a saline draught. The diet to be mild, and lightly nutritious.

The change which was affected in the situation of this patient in the course of a fortnight was quite remarkable. The condition of the fauces had been improved so much by one application of the nitrate of silver, that he was enabled to swallow without much difficulty; and by a second application this benefit was so confirmed, that his deglutition was perfectly relieved,

The amendment gradually effected in the state of the larynx and the lungs was no less remarkable. The cough became abated, the expectoration reduced to one eighth in quantity, much less consistent, and almost free from disagreeable odour. The patient described that the inhalation afforded him very sensible relief, enabling him to expectorate without difficulty, and thus rendering his chest comfortable, and his breathing exceedingly relieved. The pulse was lessened to 80, and the animal heat to 96°. He was greatly improved in strength, had evidently gained flesh, and his aspect was changed from that of one apparently dying, to the appearance of beginning convalescence.

I quitted London at this time; but learnt, from the medical gentleman under whose care he remained, that this prosperous course of improvement was suddenly interrupted by an exposure to damp and cold, in a change of apartments; for his was the lot of poverty. This was followed by a new and violent accession of symptoms, which quickly depressed the vital powers of one who

had so long been enfeebled; and the struggle did not last beyond a few weeks.

Observations.—I relate this case as instructively shewing the fitness of iodine inhalation in a diseased state of the larynx, joined with tubercles in the lungs. I had my doubts whether its use was admissible, and was agreeably surprised to find that it produced the best effects. I am sure that much advantage was derived from the application of the nitrate of silver; and I would always recommend this treatment in very irritable states of the larynx, when the posterior fauces present any appearance of irritation or disease of the mucous membrane. It is perfectly safe treatment, and not at all severe. It does not seem unreasonable to believe, that, if the poor patient could have enjoyed all the comforts and advantages which his delicate condition required, he might have regained a tolerable state of health. The improvement was so decided as, I conceive, to justify this remark: and had the treatment been used at a much earlier period, permanent success might perhaps have been obtained.

CASE IX.

Asthma—Bronchitis—promptly and very remarkably relieved by inhalation of iodine with conium.

A gentleman, aged sixty-four, for many years constantly more or less affected with humoral asthma, was seized with severe symptoms of acute bronchitis, which became mitigated by the application of leeches, blisters, and the usual treatment: but the disease continued, passing into the chronic form. The cough was frequent, and distressingly violent; the expectoration was profuse, usually amounting to about a pint in the twenty-four hours; it was in part frothy, but in the largest proportion it was heavy, tenacious, highly offensive in smell, and occasionally mixed with blood. The breathing was sometimes alarmingly embarrassed after the fits of cough, and exceedingly oppressed also whenever the foul secretion was much collected in the bronchial tubes.

The stethoscope indicated a high degree of mucous rale, and here and there also the sibilant

rale. In the upper part of the right lung, the respiration was so imperfect, and the sound from percussion of the clavicle and beneath it so dull, that I suspected the existence of tubercles.

The patient was much reduced in flesh and strength; the pulse was 80, its natural frequency being 66 in a minute; the animal heat, which I had occasionally examined when he was in his ordinary state of health and found to be 94°, was now raised to 98°. In the course of every day, some hectic fever prevailed. He expressively declared that he felt himself to be wasting and gradually sinking; and certainly the aspect of the disease was most unpromising.

He had taken various expectorants latterly with but slight relief: he had removed to a favourable situation for change of air, and received all the advantages of regulated diet and regimen: but the bronchial symptoms continued almost as urgent as before, when I put him on the plan of inhalation, using the iodine mixture with conium. The good effects which were quickly produced exceeded my most sanguine expecta-

tion. Even in the short space of two days, great relief was experienced; and, at the end of ten days, the expectoration was lessened to about an ounce in the twenty-four hours, was simply mucous, and no longer offensive in odour.

He described that he felt his whole chest comforted by the inhalation; that he could without difficulty disengage the expectoration, which before had required for its expulsion such paroxysms of cough as were frightful and overwhelming.

He took at this period of his convalescence the following draught with great advantage:

℞. Sulph. quinin. gr. iss.
Sulph. magnes. ʒi.
Aquæ puræ ʒx.
Tinct. aurant. ʒi.
Syrupi aurant. ʒi.
Acidi sulph. dilut. gtt. viii.—M.
Fiat haustus bis quotidie sumendus.

The patient recovered his health to a point of improvement beyond what was usual for him to enjoy; but a perfect restoration was not to be expected in a case where such complicated disease

of the lungs had long existed. After his recovery, I found the animal heat returned to its former point of 94°, and the pulse to 66.

Observations.—The powers of the iodine inhalation in correcting the morbid condition of the mucous membrane of the bronchiæ were here most happily manifested. The patient had, of his own accord, made trial of the iodine mixture without the conium; but he found that, used alone, it produced an inconvenient degree of irritation, and excited too much cough.

The remarkable change in the degree of the animal heat is worthy of notice. In the ordinary state of his lungs there was always more or less of obstruction in the bronchiæ and air cells, and the process of sanguification could never be healthily performed: hence I conceive the development of the animal heat was rather below the usual standard amongst healthy persons; but, when morbid irritation was carried to a great height, with an increased circulation, the capillary circulation of the lungs was increased, and there was high nervous irritation affecting the

pulmonary functions; and hence, from such united causes, the production of four degrees of animal heat beyond the ordinary standard in this individual may probably be explained.

The examination of the animal heat in patients labouring under phthisis pulmonalis is not a matter of mere physiological curiosity. It is pathologically instructive. I have found invariably that it has ranged beyond the usual standard of health in this class of patients; and I always hail it as a favourable circumstance that it becomes reduced at the same time that the general symptoms are ameliorated. I have much less confidence in the apparent improvement of the patient, when not accompanied by a reduction of the animal heat.

It would be foreign to the purpose of this little treatise for me to enter into the difficult and extensive subject of the animal heat, as a physiological question; and I do not wish to challenge criticism in the few remarks which I now offer.

I have made very numerous examinations of the degree of animal heat shewn by placing the

bulb of the thermometer under the tongue, in persons in health, and in others variously indisposed. The healthy range appears to me to be from 94° to 97°; and about a degree beyond 97° I consider to be an indication of disease. The elevation beyond the medium standard which I would state as 95° is not connected with mere increase of the circulation. In an elderly man, complaining of general nervousness and weakness, with palpitation of the heart and a pulse of 128, the degree was 94. I contrast this with finding in a consumptive patient, in the last degree of debility and disease, the animal heat 101°, with the pulse 128. In a female, aged nineteen, ill with congestion of the liver and amenhorrhœa, the heat was 94·5.

I examined the animal heat (always by application of the bulb of the thermometer under the tongue) of twenty-five individuals, twenty of whom were affected with chronic rheumatism, and the remaining five laboured under some disorder of the digestive organs. I subjoin a state-

ment of the patient's age, the pulse, and the animal heat.

AGE.	PULSE.	ANIMAL HEAT.
23	76	97
25	72	97
26	72	97
30	84	98
30	92	98
30	66	95
34	88	96
36	88	98
38	96	96
38	80	97
40	76	97
42	96	95
44	88	96
46	88	98
50	80	98
53	80	97·5
54	76	97
55	120	96
56	80	98

AGE.	PULSE.	ANIMAL HEAT.
57	82	97
60	78	97·5
60	76	97
68	76	97

An examination of the animal heat of twelve persons, all in perfect health, afforded the following results:

AGE.	PULSE.	ANIMAL HEAT.
11	76	95
14	72	96
16	76	97
17	96	97
18	88	97
40	80	95·5
40	72	96
40	68	97
49	70	96
50	72	96
51	68	96
52	72	95

I state it as a fact, that, in the preceding list of

invalids, all those whose animal heat gave the indication of 98 degrees by the thermometer, were suffering in some way from the state of the chest, as from cough or short breathing, or chronic pleuritic pains. I have not extended my examination to those who have been affected with disease, either acute or chronic, of other organs, and therefore my present conclusions must be cautiously stated; but I think I may venture to assert, that, when the lungs, or mucous membrane of the air passages, are in a state of irritation from disease, the animal heat is always more or less raised beyond the natural standard. The examples chosen of persons in full health serve to shew that 97 may be considered as the maximum of the healthy standard.

The heat is always raised one or two degrees by the inhalation; an effect in part to be ascribed to the actual introduction of caloric. This increase soon passes away. If, on the contrary, it remain permanent and considerable, we should lessen the strength of the inhaling mixture, and be particularly careful not to have the water at a very high temperature.

CASE X.

Chronic Bronchitis. The cough extremely urgent; the secretion from the mucous membrane remarkably viscid. The iodine inhalation curative within a short period of time.

J. C. aged fifty-four, tall and robust, and in good health till two months before the present illness, was attacked in March with bronchitis, the acute symptoms of which were not of long continuance. When he consulted me, he was labouring under severe cough; and he represented that the fits were sometimes half an hour in duration, and that it was especially troublesome in the night. He had great difficulty in lying down, and was disturbed every hour or two by the accumulation of sputa, which were so glutinous and ropy as with great difficulty to be discharged even by the most continued coughing. He suffered much from night perspirations. The pulse was 88; the animal heat did not exceed 95°: he was free from fever. The appetite was deficient; but the digestion, for the most part, regularly performed.

I did not think it necessary to prescribe any

internal medicine, and limited the treatment to the use of the inhalation, which consisted of the iodine mixture with the addition of a small portion of conium; but I recommended that he should omit this narcotic ingredient, except when the cough was particularly troublesome; for I conceived that the use of the iodine alone was more favourable to the discharge of the glutinous sputa; and so the result proved.

I directed him to wash the chest by means of a towel with the compound vinegar lotion, and afterwards to use the flesh-brush.

He quickly improved in the most satisfactory manner. He expressed that the inhalation created an immediate facility of expectorating, the effects of which were quite delightful to his feelings—"that the phlegm seemed to come from the bottom of his lungs, and that, when this was cleared away, his chest was light and easy."

The appetite improved, and the looks of the patient testified the favourable change in the state of the chest. In his own natural language he described, with great emphasis, "the wonderful

benefit which he derived from the inhalation." His cure was completed in about three weeks.

Observations.—I considered that, in this case, the influence of the inhalation upon the constitution, as well as upon the parts with which it came into immediate communication, was very well shewn. The patient soon found his appetite increased; a perfect regularity of the bowels produced; and an improvement of the spirits and of the nervous system in general.

CASE XI.

Habitual Asthma. The difficulty of breathing attended with distressing cough, readily induced by cold, damp, and especially by foggy states of the atmosphere. The symptoms satisfactorily relieved by inhalation.

A gentleman, aged twenty-seven, slight in figure, and having that form of chest which is commonly called "pigeon-breasted," had been asthmatic from his infancy, and two years before the occasion of his consulting me experienced a dangerous inflammation of the lungs, which had left him almost constantly suffering more or less from irritable cough, and especially in the winter season.

When I first saw the patient, he was evidently labouring under bronchitis. The symptoms were very urgent, but wholly of a chronic character. The cough was extremely irritable; the bronchial secretion copious, viscid, of disagreeable odour, and of greenish colour. The respiration, always in some degree embarrassed, was now much hurried, in number 32 in the minute, and distressingly accelerated on going up stairs, although he ascended with much care. He complained of a sense of stricture and oppression of the chest, some sense of tightness in the trachea; had considerable difficulty in lying down in bed, and, when he arose in the morning, the struggle to free the air passages from the secretion which had been collected during the night, was often so severe as to weaken and render him languid for the whole day. The pulse was 96; the animal heat 95°. On each side, the stethoscope indicated much mucous rale; and there was a considerable degree of resonance.

The digestive organs were not in a healthy state: the appetite was impaired, the bowels were irregular, the biliary secretion was deficient and

vitiated, and the urine deposited much lateritious and mucous sediment. The patient was thin, and had the appearance of being worn and debilitated. He said that he always felt weary, languid, and wretched.

I prescribed internally at first mild aperients and alteratives, as preparatory to the use of the alkaline sarsaparilla mixture; the inhalation of iodine alone, or conjoined with conium, directing him to add the latter ingredient only when the cough was irritable; and further, that when the asthmatic embarrassment was troublesome, he should add some saturated tincture of stramonium. I desired him to wash the chest daily with the compound vinegar lotion; its application being followed by the use of the flesh-brush. The result of this treatment was perfectly satisfactory. He made the following report of the effects of the inhalation: he used it regularly on first rising in the morning, sometimes before quitting his bed, and immediately obtained a facility of expectorating, which superseded the necessity of the usual cough, and prevented its taking

place in any troublesome degree. The breathing was rendered easy, and the chest light and comfortable: a happy exchange, he said, for the feelings of oppression and restraint which formerly always affected the windpipe and the chest more or less severely. He repeated the inhalation in the middle of the day: for the most part, he employed the iodine mixture separately, as he conceived that it acted more strongly as an expectorant when thus used; although, occasionally, he found the advantage of adding the other ingredients.

On the further plan of invigorating the constitution of this patient, I took the earliest suitable opportunity of directing the use of a graduated shower-bath, and the employment of dumb-bells.

The permanent method of treatment then consisted of the use of the iodine inhalation every morning early, the occasional repetition of it during the day, the continuance of the tonic alterative, the sarsaparilla mixture, the shower-bath, &c.

Observations.—It could not be expected that so confirmed an asthmatic patient should acquire the possession of perfect health; but it is satisfactory to report that the state of his chest was rendered, for the most part, very comfortable. He obtained every morning, by means of the inhalation, an effectual clearance of the bronchial tubes: by the use of the shower-bath, the ablution, friction, and dumb-bells, he gained a very marked increase of strength in the muscles of the chest, and in the body altogether; and his general health became equally amended.

CASE XII.

Chronic Laryngitis. The symptoms immediately relieved by an inhaling mixture of conium and hydrocyanic acid; and the affected parts further restored by the inhalation of iodine.

A lady, aged thirty-six, was subject to chronic inflammation of the larynx, the symptoms of which were a sense of burning heat in the part, a viscid mucous secretion difficult to be excreted, impediment in the swallowing of the saliva, occasionally an irritable cough, and an uneasy

respiration, which now and then became even painful, with a slight degree of spasm.

On a former occasion, when I was consulted by this patient, I observed, upon inspection of the fauces, a considerable degree of efflorescence, and the symptoms partook altogether of a more inflammatory character than in the present instance; and then, in addition to the benefit derived from leeches and a blister locally, with antiphlogistic constitutional treatment, I obtained very excellent effects from the application of a solution of nitrate of silver, as low down near the glottis as could be reached by a camel's hair brush.

On this second occasion, there was no inflammatory appearance in the fauces; and, as cough, with the other symptoms already described, was troublesome, I was desirous of employing the treatment of inhalation; and I prescribed a mixture of conium and hydrocyanic acid.

The effects were quite satisfactory. All the symptoms were immediately relieved; and, at the end of a week, I directed this lady to use the

iodine inhalation twice a day, with a view to produce a more permanently healthy state of the mucous membrane of the air passage. I was not disappointed in my expectations. She related, that from the first inhaling mixture she experienced a soothing warmth in the windpipe and over the chest, with an equal relief of the breathing and the cough; and, finally, from the use of the iodine, a gradual recovery of the natural powers of the voice and the respiration.

I advised the daily use of the compound vinegar lotion, with the flesh-brush, &c. and of the graduated shower-bath, with a view to effect a permanent establishment of health.

Observations.—At a former period, this lady for a considerable time was subject to occasional small discharges of florid blood from the trachea, issuing without cough or any painful sensation. I have met with several examples of this complaint, which naturally alarms the mind of the patient; and, although it does not appear to be attended with any danger, it should receive the due attention of the physician. Sometimes this

discharge of blood proceeds from actual rupture of vessel; but, at other times, it seems probable that it is the result of transudation from the exhalants of the secreting mucous membrane.

Hæmoptysis, or the issuing of blood from the lungs, is a still more alarming symptom; it is a very common attendant on phthisis pulmonalis, and sometimes the forerunner of that disease. But, not unfrequently, it is a chronic complaint; that is, occurring occasionally for years, and the patient is so accustomed to its visitations as to lose all serious apprehension of the consequences. The disorder affects women more than men, and is often vicarious to the catamenial discharge; but I know a gentleman who has been subject to hæmorrhage from the lungs for the last forty years, and who, during five successive years, never passed one week free from spitting of blood; and yet, from his good looks and strength of body, he bids fair to enjoy great longevity.

As these are cases which I have not thought proper to treat with inhalations, I shall pursue the subject no further.

CASE XIII.

Common irritable Cough; speedily cured by the inhalation of conium.

A lady, for the most part enjoying good general health, had long suffered inconvenience from an irritable state of the trachea; so that, from the slightest exposure to cold, she became affected with a spasmodic kind of cough, unattended with secretion. In this case I found the use of an inhalation of conium prove sufficient for the complete relief of the cough; and my patient humourously said, "that she never would travel without her excellent friend the pipe."

I subsequently recommended other means for the purpose of giving tone to the affected parts; but this simple treatment proved quite sufficient for the removal of the cough: and not finding the smallest inconvenience from the inhalation, this lady extolled its influence as far more agreeable and satisfactory than that of internal medicines, of which she had, on previous occasions, made a free use.

CASE XIV.

Chronic Bronchitis. The cough extremely urgent, and the bronchial secretion unusually viscid and tenacious. The cure effected by inhalations and counter-irritation.

A female, aged 54, tall and slight, of delicate constitution, having rather a contracted chest, subject to winter cough for the last twenty years, with asthmatic breathing, consulted me in the latter part of autumn, for a cough of unusual severity, from which she had suffered three weeks. It was a strong sonorous cough, and so irritable, that she could scarcely carry on any conversation. She complained of a sense of tightness in the trachea, of an oppressive sense of uneasiness in the upper part of the chest on the right side, and of being very short breathed. The quantity of expectoration was upwards of half a pint in the twenty-four hours, partly frothy, but, in great part, also extremely viscid and ropy, and of a disagreeable faint odour. When this was much accumulated, the fits of coughing were of such violence as to threaten suffocation. By the ste-

thoscope I discovered strong mucous, and some sibilant, rales on the right, and mucous rale on the left, side of the chest. The pulse was 96; the animal heat 97·5. The digestive functions appeared to be in a natural state, and the constitution not affected, except with nervous irritability, in consequence of loss of sleep at night from the urgency of the cough, which scarcely intermitted throughout the twenty-four hours.

I prescribed a mixture for inhalation composed of tincture of conium, tincture of ipecacuanha, and hydrocyanic acid; the application of the acetic acid with cantharides (p. 56) to the upper part of the right side of the chest; and no other internal medicine than a little sulphate of magnesia as occasion should require. The good effects of the inhalation were immediately apparent; and in two days the cough was so much abated, that I directed the iodine inhalation; but prematurely, as was shewn by an immediate and continued aggravation of the cough. She resumed, therefore, the first mixture, and with the

former success. She described that, in two hours after the application of the counter-irritant, a considerable vesication was produced, fully as much as would have followed from a blister; that it was attended with some sense of burning, but by no means with the pain which she had always experienced from a blister; and, from the moderate sensations which she had felt, she was quite surprised to discover how much effect had been produced.

She had attentively used the inhalation three times a day for a week; at which period the cough was become comparatively slight and unfrequent; the sputa were much reduced in quantity, and amended in quality; but still there was much of the peculiar viscid secretion before described. The pulse was reduced to 84; the animal heat to 96°.

I now directed that the iodine inhalation should again be tried; but with the addition of conium. It agreed perfectly; it proved soothing instead of irritating; and she was much struck by the facility which it gave her of ex-

pectorating—still more decided than from the use of the other mixture.

The secretion from the bronchial mucous membrane was gradually corrected, and brought to the natural state of health. In three weeks this patient recovered entirely; and, for the last few days, had used the inhalation only once or twice in the day.

Observations.—As far as relates to the treatment of bronchitis not attended with decided inflammation, I should be almost contented to rest my conviction of the efficacy of inhalation on this case, so unequivocal was the benefit speedily obtained. The patient herself contrasted it with the slow and imperfect advantages which she had derived from internal medicines, administered for a long period in the preceding winter, when the bronchial attack, according to her own account, was less severe than the one now described.

I was particularly satisfied with the effects of the lytta infusion, and with which I have now had considerable experience. I have sometimes

seen it produce complete vesication in the course of an hour, and think that the certainty of its action is more to be relied on than that of the ordinary blister. For the promptitude therefore of its effects, the facility of its application, and the apparent simplicity of the treatment, this remedy appears to me highly worthy of recommendation.

CASE XV.

Bronchitis, unattended with fever. The cough very urgent, and remarkably relieved in a short time by an inhaling mixture of conium, hydrocyanic acid, and ipecacuanha.

A female, aged forty, of robust form, the mother of several children, for years past affected with severe cough in the winter season, had been ill for a fortnight, when she consulted me for the relief of one of her usual attacks. She related that she had been frequently affected with alternate chills and heats, that the cough had been "very hard," and so violent and incessant as to disable her from occupation in the day, and dis-

turb her rest at night. The breathing was short; she did not complain of pain in the chest; but she was sensible of oppression, and felt almost a constant tickling in the larynx. The sputa were copious, and she expectorated with much difficulty. She had considerable perspirations at night, appeared languid, and described herself as greatly subdued by the cough. The pulse did not exceed 84, nor the animal heat 97°. The digestive functions were not much disturbed; and I ventured to submit this case to the sole influence of the treatment by inhalations.

I prescribed therefore, as in the last case, a mixture of conium, hydrocyanic acid, and ipecacuanha, which she inhaled three times a day. The effects were quite satisfactory. At the end of five days, the cough was so much mitigated, that she declared herself to be almost cured, and that, in this short space of time, she had received more benefit from inhalation than from internal medicines formerly, taken for a considerable time.

Observations.—Although I wish, in the general character which I offer of the treatment by inhalation, to speak of it as a valuable auxiliary rather than as being in itself sufficient, yet I shall express the truth only when I affirm that I have in many other instances, as well as in these just related, been able to effect the cure of bronchitis, and catarrhal cough, by pursuing the same method, without prescribing any internal medicine.

CASE XVI.

Spasmodic Asthma. Very satisfactory relief obtained from the inhalation of æther, conium, and ipecacuanha.

A married lady, aged thirty-six, had been subject to attacks of spasmodic asthma for some years past; from which she obtained relief by the use of antispasmodic and expectorant medicines: but her stomach was often disordered by their influence, and she had recourse to them with reluctance. I was desirous of trying the comparative power of inhalation; and prescribed, for this purpose, a mixture consisting of æther,

conium, and ipecacuanha. I subjoin a statement of its effects in the words of the intelligent patient.

"I inhaled the medicated vapour during fifteen minutes before going to rest. The first sensations it occasioned me, were slight fatigue in breathing, and an aching pain in the breast; which, however, subsided by degrees; and when expectoration took place, which occurred copiously within half an hour after the inhalation, I felt completely relieved. Afterwards, in the course of the night, whenever I awoke, (instead of feeling the oppression, and the difficulty of breathing which often distress me) expectoration, without effort, took place; and, breathing easily and freely, I then slept again immediately. Usually, whenever I awake with the sensation of tightness across the chest, I do not sleep for an hour or two afterwards.

"During two days after the inhalation, slight expectoration continued; and ever since (now ten days) my breathing, both night and day, has been perfectly free."

GENERAL OBSERVATIONS AND CONCLUSIONS.

In the preceding pages I have confined myself to the relation of a limited number of cases; but I trust that they will be found sufficiently numerous and important to prove and illustrate the efficacy of inhalation.

It has often happened that valuable remedies have been laid aside or neglected, in consequence of some mismanagement in their use, or, perhaps, from an excessive zeal in the recommendation of them by their authors; so that, not being found capable of producing the promised effects, they have experienced the unmerited fate of being rejected as useless.

Some of the medicines which I have recommended for inhalation are agents of much delicacy and power. My conviction of their most perfect safety, employed in this manner, has not been shaken by a single untoward instance; but it is right to state, that their administration requires careful attention and management. The composition of an inhaling mixture, and the

doses to be used, are to be adapted to the particular case, and changed according to its varying circumstances, in the same manner as we find it necessary and proper to alter and accommodate our treatment with internal medicines.

For this reason, therefore, and from an apprehension that patients themselves might be tempted to undertake the treatment of their own cases, with the great risk of receiving injury instead of benefit, I have avoided the introduction of formulæ of the remedies for inhaling, although I have, on every occasion, mentioned them in a general manner. I will, however, offer the following further particulars for the information of the professional reader.

As, by mixing the tincture of iodine with water, the iodine itself separates into flakes, which become precipitated, and as this medicine is very sparingly soluble in water alone, I found it expedient to form a preparation which should be uniform, and preserve its transparency when united with water. This advantage is effected by adding together iodine, hydriodate of potash, dis-

tilled water, and alcohol. The proportions of the ingredients are to be varied according to the circumstances of the case.

The tincture of conium is a saturated tincture prepared from the dried leaves.

The tincture of stramonium is a saturated tincture prepared from the dried leaves and stalks.

The tincture of ipecacuanha is a spirituous tincture prepared from the roots.

The hydrocyanic acid which I have always employed was of the specific gravity ·994.

The æther employed is the pure sulphuric æther.

The chlorine solution is the saturated solution of pure chlorine gas in distilled water.

Of all these agents, the iodine is the most active, and that in which I place my confidence as the curative remedy in phthisis pulmonalis. The temperature of the water with which the preparation is to be mixed should be from 115 to 120° of Fahrenheit; and, when the proportion of iodine is increased to a full measure for each

inhalation, I direct that the quantity be divided into two equal portions, the one to be used for the first ten minutes, and the other for the same space of time in continuation; and, as the average frequency, three times a day: but sometimes it may be expedient to use it for ten or fifteen minutes only at a time, and three or four times a day. The inspiration should be as strong as can be conveniently made, in order that the vapour may freely enter into the lungs: but the patient should inhale in a manner not to fatigue the chest; and this evil will be avoided if he allow himself sufficient interval between the periods of inhaling to recover power.

I lay it down as a principle, that inhalation should always be so conducted as not to produce distress to the patient in any way, either as regards the composition of the mixture, its strength, or the period of carrying on the process.

In first entering on the treatment of inhaling, the irritation of coughing is usually produced; and in some cases this happens on every subsequent occasion; but, unless this prove excessive or per-

manent, it does not form an objection to the treatment, for the power of expectorating is remarkably facilitated, and, the bronchial tubes being cleared, a material subsequent relief to the cough is afforded. But a curative and not merely a palliative effect is the object to be held in view.

The proportion of alcohol contained in the different materials is too small to produce any inconvenient stimulation; it is necessary as the menstruum, and it is useful also as causing the volatile parts of the medicine to rise more freely with the watery vapour.

The administration of the iodine inhalation is improper when any decided inflammatory action is present. It happens, occasionally, in phthisis pulmonalis, that blood is coughed up, either pure or mixed with the sputa. In the first case, it is most probably the consequence of a rupture of vessel, caused by the force of coughing, when there is an increased capillary circulation; and such appearance should induce us either to suspend the inhaling process altogether, or to use only sedative ingredients till the ex-

pectoration cease to be coloured. But, when the blood is of a very dark colour, instead of being of a bright scarlet, and, more especially, when it forms only a proportion of the sputa, we may conclude that it is the consequence of that slow ulceration by which small vessels are eroded; and in such circumstances I have not been deterred from using the iodine; but have always blended with it the conium. The disappearance of colour in the expectoration will confirm the propriety of the treatment.

The admixture of iodine, and also of chlorine, with hydrocyanic acid is incompatible; as is also that of iodine with chlorine.

The tincture of conium is usually very soothing in its effects, and may be mixed with any of the other materials.

Tincture of opium may sometimes be used advantageously, either alone or as entering into the composition of the inhaling mixture. I have occasionally added it to the iodine solution; but, for the most part, I give the preference to the conium.

The tincture of digitalis produces sedative effects, and more especially when united with the hydrocyanic acid. In one case in which spasmodic irritation, united with slight symptoms of inflammatory action, prevailed to a great degree, I obtained the best effects from this mixture.

The tincture of stramonium exerts an antispasmodic power in asthma.

The tincture of ipecacuanha is expectorant.

The internal use of hydrocyanic acid is by some practitioners contemplated with great apprehension. I do not prescribe it except in very small doses, and which are perfectly safe; but I can confidently state that no inconvenience attends its employment as an ingredient for inhalation, while it often proves highly serviceable as a sedative and antispasmodic. The dose which I have usually employed has been from three to six minims, using the water from 100 to 110 degrees.

Æther is found to be very useful in a spasmodic condition of the air passages, and contributes to facilitate expectoration. It may be joined with

any of the other ingredients, or used separately. Such is its great volatility, that the water in the inhaling bottle should not be of a higher temperature than 100 degrees; and the quantity should be renewed every three or four minutes, ten minims being added each time; but the water need not be changed.

In cold weather, especially, it will be necessary to keep the bottle containing the inhaling mixture (of any kind) immersed in hot water, during the process, in order that the proper temperature may be kept up.

Of the chlorine solution I have to observe, that, as a remedy employed in the same manner and with the same views as iodine, it has not afforded me results approaching in value to those obtained from the latter medicine. In several cases of phthisis pulmonalis I substituted the chlorine for the iodine; but did not continue its use more than a few days, as its beneficial action was, in my opinion, very decidedly inferior; and, on every occasion, the patient, when resuming the inhalation of iodine, in strong language

expressed his conviction of its being by far the most serviceable remedy.

Chlorine, from its great volatility, comes over so quickly with the aqueous vapour, that the total quantity used at each inhalation should be partitioned into doses, if the process be continued beyond four or five minutes; otherwise its action will at first be too strong, and at last too weak. For the temperature of the water, I prefer 110°; and for each of the subdivided doses, from ten to twenty minims. I have usually found that the patient prefers the plan of protracted inhalation three times a day, to the greater frequency for a shorter time; although I consider this point for the most part optional.

Those who are desirous of more information than I have given respecting the inhalation of chlorine, as a remedy in tubercular phthisis, may with advantage consult the Memoirs of M. Gannal, published in France, recently translated by Mr. Potter, of Old Compton Street. I shall be happy to learn that the highly favourable report of M. Gannal becomes supported by the testi-

mony of others: for it is most desirable to increase the list of really useful remedies in a disease so melancholy as phthisis pulmonalis.

It must be confessed, that whoever engages in the treatment of phthisis pulmonalis on a large scale of practice, must often of necessity witness the failure of his best exertions; and must often also experience painful disappointment where even he had felt himself authorized to indulge in sanguine hope. It is indeed almost invariably prudent to deliver a guarded prognosis. This does not lessen the chances of success, while it softens the distress of failure. Yet, even in desperate circumstances, I recommend the use of inhalations; as being calculated, more than any other treatment, to mitigate the most troublesome symptoms, and afford the patient great comfort and relief. Also, I am persuaded, that such treatment affords the strongest chance of cure.

Before the disease has made much destructive progress, and especially in the very early stage of phthisis, I have the highest opinion of the efficacy of the treatment. But I desire to repeat

what I have before said, that internal treatment, and general management, should be joined with the plan of inhalations; embracing the administration of medicine, the regulation of the diet, the temperature of apartments, the place of residence, the kind and extent of exercise, the clothing, and the state of the mind—as far as that delicate, but very important, influence is within our controul. I have occasionally, as shewn in some of the cases which I have related, found the pulmonary or bronchial disease in so great a degree local, that I have chiefly or wholly trusted to the use of inhalations, and with success; but these are exceptions to the general rule.

I shall here bring to a conclusion this little Treatise, with the hope that I have performed some service to medical science and to humanity, in proposing a treatment, novel in many essential points, always perfectly safe, and never failing to render more or less of benefit, when the case is appropriate for its employment. I may finally state, that it is remarkably successful in chronic bronchitis; gives relief to the asthmatic patient;

proves often curative in cases of phthisis pulmonalis, not become desperate in their nature; and is capable of much useful influence even in those extreme examples of the disease which too probably admit only of alleviation, and seem to bid defiance to the ordinary rules of practice.

THE END.

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